NORTHWEST NONRESIDENTIAL LIGHTING MARKET TRENDS
We’ll get to lighting, but let’s talk about **smartphones** first.
Smartphones have experienced a boom.
The transition from mobile to smart phones introduced new functionality.
In lighting, the **smartphone** era is just beginning.
Adoption of LEDs facilitates addition of **controls**, introducing new functionality and savings.
LED penetration increased by over 45X between 2009 and 2015 (installed stock)
Now, 50% of installed stock is LED
HOW DO WE KNOW ALL THIS?
Innovative data sources improved the model.
We used that regional data to build a **stock turnover model**.
What do we mean by the Nonresidential Lighting market?

- 16 technologies
- 12 applications
- Commercial Industrial
  Indoor agricultural
  Outdoor lighting
- Lamp
- Oregon
  Washington
  Idaho
  Western Montana

2015

2021
MODEL RESULTS
LED adoption continued to save energy.

- Frozen Baseline Consumption: 2,001
- 18% reduction
- Actual Consumption: 1,637
Stock penetration of LED technology has grown dramatically.
LEDs displaced less efficient technology in installed stock

Non-LEDs
96.3

LEDs
9.5


Million Lamps in Installed Stock
LEDs now dominant in the stock in **all sectors**

![Bar chart showing increasing LED market share in different sectors from 2015 to 2021.]

- **Y-axis:** Percent of Stock LED
- **X-axis:** Year (2015 to 2021)
- **Legend:**
  - Commercial MKT
  - Industrial MKT
  - Outdoor MKT

The chart illustrates a steady increase in LED market share across all sectors from 2015 to 2021.
Ambient linear stock still dominated by fluorescent lamps, but **TLEDs gaining ground**

![Graph showing the transition from fluorescent to TLEDs over time](image-url)
Sales mix shifting dramatically towards LEDs

- 0% to 100% sales shifts from 2015 to 2021
- Key categories: TLED, LED Luminaire, LED Lamp, HID, Incandescent + Halogen, CFL, Linear Fluorescent

Graph shows the percent of lamps in sales over the years.
LED sales grew **quickly**

In 2021, a new non-residential LED product was sold every **2.6 seconds**
TLEDs showed meteoric growth in adoption

26 Million TLEDs were sold in the analysis period – enough to circle 80% of the Earth’s circumference.
LEDs got **way cheaper** between 2015 and 2021.
LED Luminaires are still in the **early days** of adoption
LED luminaire sales plateaued with COVID, but growth will continue.
Even when LED sales cool off, LED stock continues to grow

<table>
<thead>
<tr>
<th>Year</th>
<th>Commercial Sales</th>
<th>Commercial Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>11% 9%</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>22% 15%</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>30% 21%</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>41% 29%</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>47% 36%</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>51% 43%</td>
<td></td>
</tr>
<tr>
<td>2021</td>
<td>51% 49%</td>
<td></td>
</tr>
</tbody>
</table>
Program Savings are **holding steady** as consumption declines.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Market Consumption (aMW)</th>
<th>Program Savings (% of Consumption)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1,850</td>
<td>2.6%</td>
</tr>
<tr>
<td>2017</td>
<td>1,809</td>
<td>3.2%</td>
</tr>
<tr>
<td>2018</td>
<td>1,712</td>
<td>3.4%</td>
</tr>
<tr>
<td>2019</td>
<td>1,633</td>
<td>3.2%</td>
</tr>
<tr>
<td>2020</td>
<td>1,584</td>
<td>2.7%</td>
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</table>
Efficient Lighting Created **60.6 aMW** of Momentum Savings since 2015
What comes next?

- General Purpose: 41% → 77%
- Track Large: 51% → 83%
- Track Small: 50% → 71%
- Ambient Linear: 3%
- High/Low Bay LOW: 3%

(2015-2021)
LED luminaires are poised for takeoff
The time has come for controls
Future research plans

- Continue collecting sales data
- Controls research
- Future model update
For more information, visit
www.bpa.gov/energy-and-services/efficiency/market-research-and-momentum-savings/lighting-market-research

Questions? Contact
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